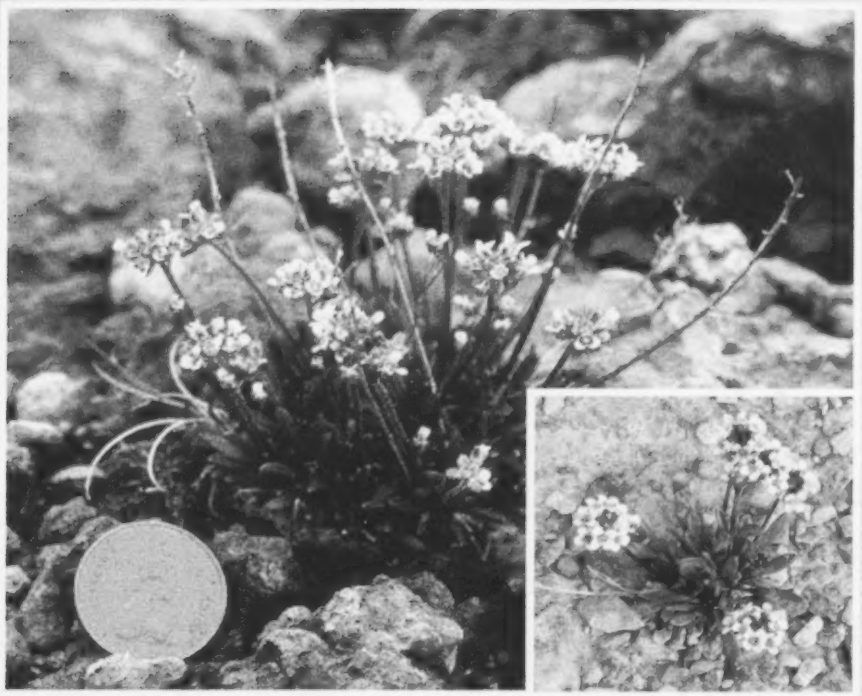
Species at Risk Act
Action Plan Series

Action Plan for the Long's Braya (*Braya longii*) and the Fernald's Braya (*Braya fernaldii*) in Canada

Long's Braya
Fernald's Braya



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For copies of the action plan, or for additional information on species at risk, including the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) Status Reports, residence descriptions, recovery strategies, and other related recovery documents, please visit the Species at Risk (SAR) Public Registry[1].

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[1] http://sararegistry.gc.ca/default.asp?lang=En&n=24F7211B-1

Preface

The federal, provincial, and territorial government signatories under the Accord for the Protection of Species at Risk (1996)[2] agreed to establish complementary legislation and programs that provide for effective protection of species at risk throughout Canada. Under the *Species at Risk Act* (S.C. 2002, c.29) (SARA), the federal competent ministers are responsible for the preparation of action plans for species listed as Extirpated, Endangered, and Threatened for which recovery has been deemed feasible. They are also required to report on progress within five years after the publication of the final document on the SAR Public Registry.

Under SARA, one or more action plan(s) provides the detailed recovery planning that supports the strategic direction set out in the recovery strategy for the species. The plan outlines what needs to be done to achieve the population and distribution objectives (previously referred to as recovery goals and objectives) identified in the recovery strategy, including the measures to be taken to address the threats and monitor the recovery of the species, as well as the proposed measures to protect critical habitat that has been identified for the species. The action plan also includes an evaluation of the socio-economic costs of the action plan and the benefits to be derived from its implementation. The action plan is considered one in a series of documents that are linked and should be taken into consideration together. Those being the COSEWIC status report, the recovery strategy, and one or more action plans.

The Minister of Environment and Climate Change and Minister responsible for the Parks Canada Agency is the competent minister under SARA for Long's Braya and Fernald's Braya. To the extent possible, it has been prepared in cooperation with Fisheries and Oceans Canada and the Province of Newfoundland and Labrador, as per section 48(1) of SARA.

Success in the recovery of this species depends on the commitment and cooperation of many different constituencies that will be involved in implementing the directions and actions set out in this action plan and will not be achieved by Environment and Climate Change Canada, Parks Canada Agency or any other jurisdiction alone. All Canadians are invited to join in supporting and implementing this action plan for the benefit of Long's Braya and Fernald's Braya and Canadian society as a whole.

Implementation of this action plan is subject to appropriations, priorities, and budgetary constraints of the participating jurisdictions and organizations.

The recovery strategy sets the strategic direction to arrest or reverse the decline of the species, including identification of critical habitat to the extent possible. It provides all Canadians with information to help take action on species conservation. When critical habitat is identified, either in a recovery strategy or an action plan, SARA requires that critical habitat then be protected.

[2] http://registrelep-sararegistry.gc.ca/default.asp?lang=en&n=6B319869-1#2

In the case of critical habitat identified for terrestrial species including migratory birds SARA requires that critical habitat identified in a federally protected area[3] be described in the *Canada Gazette* within 90 days after the recovery strategy or action plan that identified the critical habitat is included in the public registry. A prohibition against destruction of critical habitat under ss. 58(1) will apply 90 days after the description of the critical habitat is published in the *Canada Gazette*.

For critical habitat located on other federal lands, the competent minister must either make a statement on existing legal protection or make an order so that the prohibition against destruction of critical habitat applies.

If the critical habitat for a migratory bird is not within a federal protected area and is not on federal land, within the exclusive economic zone or on the continental shelf of Canada, the prohibition against destruction can only apply to those portions of the critical habitat that are habitat to which the *Migratory Birds Convention Act, 1994* applies as per SARA ss. 58(5.1) and ss. 58(5.2).

For any part of critical habitat located on non-federal lands, if the competent minister forms the opinion that any portion of critical habitat is not protected by provisions in or measures under SARA or other Acts of Parliament, or the laws of the province or territory, SARA requires that the Minister recommend that the Governor in Council make an order to prohibit destruction of critical habitat. The discretion to protect critical habitat on non-federal lands that is not otherwise protected rests with the Governor in Council.

[3] These federally protected areas are: a national park of Canada named and described in Schedule 1 to the *Canada National Parks Act*, The Rouge National Park established by the *Rouge National Urban Park Act*, a marine protected area under the *Oceans Act*, a migratory bird sanctuary under the *Migratory Birds Convention Act, 1994* or a national wildlife area under the *Canada Wildlife Act* see ss. 58(2) of SARA.

Acknowledgments

Thanks to Julie Robinson for drafting the original version of this document. This action plan was prepared by Peter Thomas, Krista Baker and Kathy St. Laurent (Environment and Climate Change Canada, Canadian Wildlife Service - Atlantic Region), in cooperation with members and associated specialists of the Limestone Barrens Species at Risk Recovery Team (LBSARRT). Thanks also to the LBSARRT for their knowledge and support during the preparation of this document as well as their continued commitment to the conservation of species at risk. Thanks to the many graduate and undergraduate students whose research has contributed to our current knowledge of Long's Braya and Fernald's Braya.

Executive Summary

Long's Braya (*Braya longii*) and Fernald's Braya (*Braya fernaldii*) were listed under the *Species at Risk Act* (SARA) in 2003 as Endangered and Threatened, respectively. Fernald's Braya was subsequently re-assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) in 2012 as Endangered, but this change to the species status has not yet been made under SARA. This action plan identifies recovery measures required to meet the population and distribution objectives outlined in the Recovery Strategy for Long's Braya (*Braya longii*) and Fernald's Braya (*Braya fernaldii*) in Canada (Environment Canada 2012):

> *Long's Braya:* Ensure that populations are viable within the current species range and establish additional populations in natural areas within their historic range by 2015.
>
> *Fernald's Braya:* Maintain populations within the current species range and, when possible, attain self-sustaining populations.

A total of 32 recovery measures are identified in this action plan, and address 6 broad strategies (monitoring, habitat management and protection, restoration and species reintroduction, scientific research, *ex-situ* conservation, and education and stewardship).

Critical habitat was partially identified for Long's Braya and Fernald's Braya in the recovery strategy (Environment Canada 2012). Additional critical habitat for Fernald's Braya is identified on non-federal lands in this action plan based on partial completion of the Schedule of Studies outlined in the recovery strategy (Environment Canada 2012). Critical habitat (from both the recovery strategy and action plan) is identified on both federal and non-federal lands on the limestone barrens of the Great Northern Peninsula of Newfoundland. Environment and Climate Change Canada is collaborating with the Government of Newfoundland and Labrador to determine if the critical habitat on non-federal lands is considered protected.

A socio-economic evaluation for Long's Braya and Fernald's Braya was developed jointly with the Barrens Willow (*Salix jejuna*) socio-economic evaluation because their ranges, threats, and habitat are comparable. The direct and indirect costs associated with the implementation of this action plan are considered low. The implementation will not only benefit both Long's Braya and Fernald's Braya, but the larger ecological community, including other species at risk (e.g., Barrens Willow) found within the same habitat.

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1. Recovery Actions

1.1 Context and Scope of the Action Plan

Long's Braya (*Braya longii*) and Fernald's Braya (*Braya fernaldii*) are small herbaceous plants restricted to the limestone barrens of the Great Northern Peninsula of insular Newfoundland. They were listed as Endangered and Threatened, respectively, under both the Federal *Species at Risk Act* (SARA) in 2003 and the Provincial *Endangered Species Act* in 2002. Fernald's Braya was subsequently re-assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) in 2012 as Endangered, but this change to the species status has not yet been made under SARA.

All the broad strategies to recovery identified in the Recovery Strategy for Long's Braya (*Braya longii*) and Fernald's Braya (*Braya fernaldii*) in Canada (Environment Canada 2012) will be implemented through measures outlined in this action plan. They are intended to address all of the population and distribution objectives outlined in the recovery strategy:

> *Long's Braya:* Ensure that populations are viable[4] within the current species range and establish additional populations in natural areas within their historic range by 2015.
>
> *Fernald's Braya:* Maintain populations within the current[5] species range and, when possible, attain self-sustaining populations[6].

Due to a precipitous decline in the Fernald's Braya population, as recorded by survey work in the summer of 2011, specific actions are focused toward Fernald's Braya in an effort to recover its population to previous (2008) levels.

This action plan should be considered along with the federal recovery strategy (Environment Canada 2012). The recovery strategy provides more details on the species, strategic direction, and approaches for recovery of Long's Braya and Fernald's Braya, including information on the approach to critical habitat identification, biophysical attributes of critical habitat, and threats to the species.

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[4] In this context, a "viable" population is one that may be management dependent for long-term persistence.
[5] For the Fernald's Braya population and distribution objective, "current" refers to 2008.
[6] In this context, the term "self-sustainable" indicates populations that do not require human intervention for long-term persistence.

1.2 Measures to be Taken and Implementation Schedule

Table 1. Implementation Schedule

#	Recovery Measures	Priority[a]	Threats or concerns addressed	Timeline
Broad Strategy: Monitoring				
1	Monitor population size, demographic parameters (e.g., longevity, productivity), survival, vegetation cover, and possible threats of pests and pathogens within permanent monitoring plots at all established study sites.	High	All threats	Every 5 years
2	Every 5 years, complete a census to identify population trends and spatial changes.	High	All threats	Every 5 years
3	Monitor and assess possible threat of climate change using the established climatic monitoring network (e.g., weather stations, air and ground temperature loggers, mechanical heave measuring instruments) to determine if climate changes are causing subsequent changes in plant population size, demographic parameters (e.g., productivity), pest infestation, and pathogen infection.	Medium	All threats except Habitat loss and degradation	Download logger data – annually; Collect other information – as required
Broad Strategy: Habitat management and protection				
4	Evaluate the current level of threat posed by land use activities on critical habitat at each known braya location and on all areas where past management activities have been implemented. Assess the effectiveness of current management activities.	High	All threats	Every 5 years
5	Finalize surveys of suitable and potential habitats within the historic range of Fernald's Braya to verify occupancy and population numbers.	High	Habitat Loss and Degradation	By 2019
6	Pursue the establishment of an ecological reserve adjacent to the federal property at Cape Norman.	High	Habitat Loss and Degradation	By 2018
7	Pursue the expansion of the Watts Point Ecological Reserve northward to include the undisturbed population of Fernald's Braya in the Four Mile Cove area.	High	Habitat Loss and Degradation	By 2018

#	Recovery Measures	Priority[a]	Threats or concerns addressed	Timeline
8	Appropriately mark (e.g., with signs, curbs) high-use areas of habitat to discourage off-road vehicle and pedestrian traffic.	High	Habitat Loss and Degradation	As required
9	Identify and consult with interest groups associated with critical habitat use (e.g., all-terrain vehicle users, snowmobile users). Provide groups with information on critical habitat conservation.	High	Habitat Loss and Degradation	By 2021
10	Develop and deliver "safe-use" educational materials that describe how work can be carried out in a way that minimizes disturbance to habitat (including maps that display the spatial outline of critical habitat) to service providers/operators likely to operate on the limestone barrens.	High	Habitat Loss and Degradation	Ongoing
11	Develop and implement an off-road vehicle mitigation plan to prevent loss of, and damage to critical habitat.	Medium	Habitat Loss and Degradation	Ongoing thru to 2021
Broad Strategy: Restoration and Species Reintroduction				
12	Using genetically appropriate source populations, reintroduce Long's Braya and Fernald's Braya by seed, where required, to restore species distribution within its historic range.	High	Habitat Loss and Degradation	Ongoing
13	Monitor the survival of Long's Braya and Fernald's Braya reintroductions biennially, for at least six years, following reintroduction.	High	Habitat Loss and Degradation	Biennially for 6 years after completion of project
14	Restore the human-disturbed Long's Braya site adjacent to Sandy Cove Ecological Reserve using restoration techniques outlined in Copp (2014).	High	Habitat Loss and Degradation	By 2019 (underway)
15	Evaluate the restoration success of human-disturbed Long's Braya sites in the Sandy Cove area by monitoring vegetation, substrate condition, and hydrologic patterns annually for five years after completion of restoration project.	High	Habitat Loss and Degradation	Annually for five years after completion of project

#	Recovery Measures	Priority[a]	Threats or concerns addressed	Timeline
16	Restore the human-disturbed Long's Braya site at the Sandy Cove Lion's Club by prohibiting wood piling and vehicle travel to wood piles and by removing wood chips, sawdust, and garbage.	High	Habitat Loss and Degradation	By 2018
17	Evaluate the recovery value of the Long's Braya population resident on the human-disturbed portion of Yankee Point.	High	Habitat Loss and Degradation	Ongoing
18	Determine and if possible, implement appropriate methods to mitigate the threat of insect pests and pathogens throughout distribution.	High	Habitat Loss and Degradation Exotic Species Natural Processes	Ongoing
Broad Strategy: Scientific Research				
19	Identify the unknown microbial pathogens that affect braya.	High	Natural Processes	Ongoing
20	Assess the role of seed bank in long-term persistence by determining the longevity of seeds in the soil seed bank.	Medium	All threats	By 2021
Broad Strategy: *Ex-situ* Conservation				
21	Maintain *ex-situ* collection of Long's Braya and Fernald's Braya at Memorial University of Newfoundland Botanical Garden and monitor plants for survival and the presence of pathogens and insect pests.	High	All threats	Annually
Broad Strategy: Education and Stewardship				
22	Based on field observation of the occurrence of activities that threaten braya, identify areas with stewardship needs and initiate stewardship activities where required.	High	Habitat Loss and Degradation	Ongoing

#	Recovery Measures	Priority[a]	Threats or concerns addressed	Timeline
23	Continue to pursue, update, and evaluate stewardship agreements between the Limestone Barrens Habitat Stewardship Program (LBHSP) and local communities, schools, and organizations (e.g., towns in the northern distribution of Fernald's Braya).	High	Habitat Loss and Degradation	As required
24	Ensure local participation in the delivery of recovery activities, such as the establishment of new protected areas or restoration projects.	Medium	Habitat Loss and Degradation	Ongoing
25	Train and provide opportunity to update wildlife and enforcement officials on current and new regulations and issues related to species at risk and critical habitat.	Medium	Habitat Loss and Degradation	As required
26	Agencies/institutions carrying out recovery activities planned in (or adjacent to) critical habitat to communicate with, and extend invitation to federal and provincial wildlife and enforcement officials.	Medium	Habitat Loss and Degradation	As required
27	Encourage intergovernmental communication between federal, provincial, and municipal agencies that have land-use management, or permitting responsibilities for populations of braya and associated critical habitat.	Medium	Habitat Loss and Degradation	Ongoing
28	Provide information on limestone barrens species at risk and critical habitat conservation to technical and non-technical audiences through use of effective media and social outlets.	Medium	All threats, except natural processes	Ongoing
29	Regularly update the limestone barrens website (www.limestonebarrens.ca) to ensure information is current.	Medium	All threats, except natural processes	As required
30	Engage and support the Limestone Barrens Community Working Group by encouraging members to attend regular meetings of the Limestone Barrens Species-at-Risk Recovery Team.	Medium	Habitat Loss and Degradation	Annually
31	Conduct surveys to determine changes in public attitude and knowledge and evaluate effectiveness of existing stewardship and education measures (e.g., develop and implement a method to assess the effectiveness of the limestone barrens curriculum in the classroom).	Medium	Habitat Loss and Degradation	As required

#	Recovery Measures	Priority[a]	Threats or concerns addressed	Timeline
32	Erect interpretive panels that display information on species biology, population status, and critical habitat conservation at key braya sites (i.e., where signs would have the most impact on braya conservation without compromising persistence).	Medium	Habitat Loss and Degradation	By 2019

[a] "Priority" reflects the degree to which the measure contributes directly to the recovery of the species or is an essential precursor to a measure that contributes to the recovery of the species. High priority measures are considered those most likely to have an immediate and/or direct influence on attaining the population and distribution objectives for the species. Medium priority measures may have a less immediate or less direct influence on reaching the population and distribution objectives, but are still important for the recovery of the population. Low priority recovery measures will likely have an indirect or gradual influence on reaching the population and distribution objectives, but are considered important contributions to the knowledge base and/or public involvement and acceptance of the species.

1.3 Critical Habitat

Critical habitat was partially identified for Long's Braya and Fernald's Braya in section 7 of the recovery strategy (Environment Canada 2012). The recovery strategy contains details regarding the identified critical habitat, including its biophysical attributes (section 7.1 of the recovery strategy), the activities likely to destroy critical habitat (section 7.3 of the recovery strategy), and the Schedule of Studies required to complete the identification of critical habitat (section 7.2 of the recovery strategy).

Additional critical habitat for Fernald's Braya has been identified in this action plan using the same approach described in the recovery strategy and based on partial completion of the Schedule of Studies outlined in the recovery strategy. The critical habitat identified in this action plan has the same biophysical attributes and activities likely to destroy it as that identified in the recovery strategy. Nevertheless, the critical habitat remains partially identified. Surveys of potential substrate within the range of Fernald's Braya will allow for the complete identification of critical habitat.

No additional critical habitat for Long's Braya is identified in this action plan.

1.3.1 Identification of the Species' Critical Habitat

The location of critical habitat for Fernald's Braya and Long's Braya is identified in the series of Figures 1 to 7 and includes critical habitat already identified in the recovery strategy (for both species) as well as the additional critical habitat identified in this action plan (only for Fernald's Braya).

Twenty-nine (29) new critical habitat sites for Fernald's Braya are identified in this action plan. Twenty-eight of these sites span the area northwest of Watsons Pond (51° 32′ N and 56° 02′ W) to Cook's Harbour, Newfoundland and Labrador (51° 36′ N and 55° 53′ W); one site is north of Bellburns, Newfoundland and Labrador (50° 20′ N and 57° 31′ W) (Figures 1 and 2). This latter occurrence expands the previously known range of Fernald's Braya approximately 35 km southward.

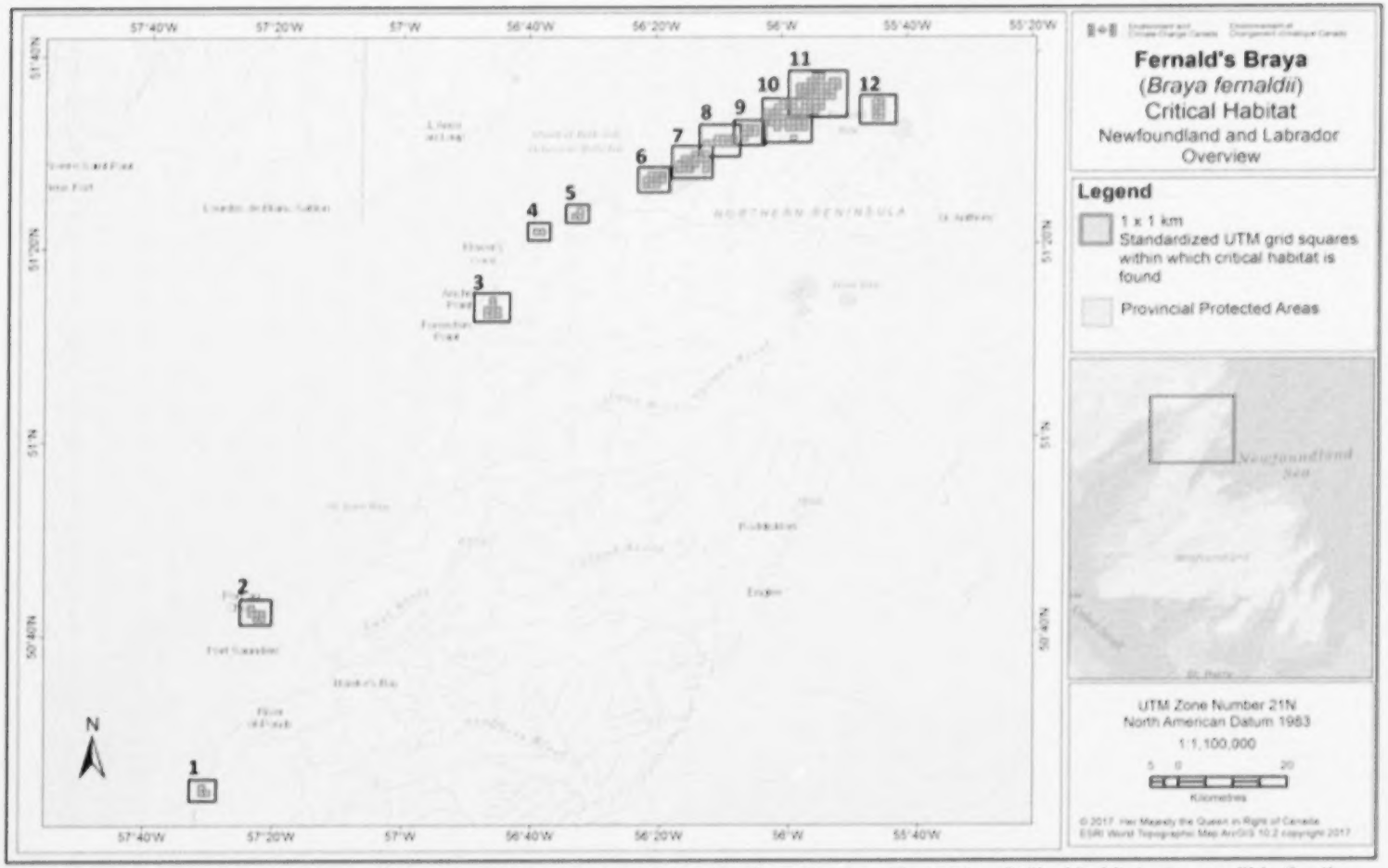

Figure 1. Overview of Fernald's Braya (*Braya fernaldii*) critical habitat in Newfoundland and Labrador. Critical habitat occurs within the the 1 km x 1 km UTM grid square (red outline with pink shading) where the biophysical attributes are met, which are part of a standard national grid system that highlights the general geographic area containing critical habitat.

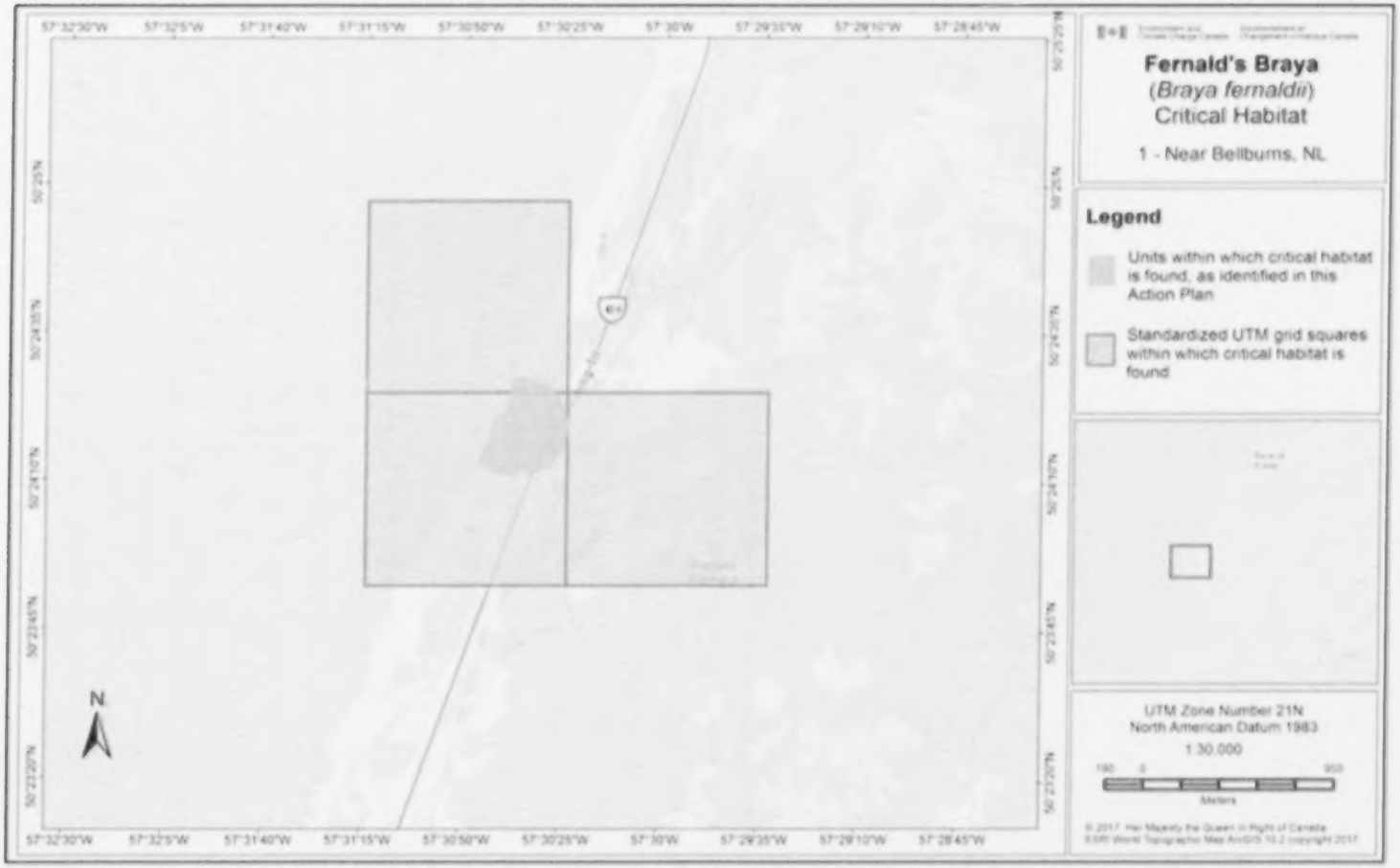

Figure 2. Fernald's Braya (*Braya fernaldii*) critical habitat near Bellburns, Newfoundland and Labrador (close-up of inset map 1 from Figure 1). Critical habitat occurs within the orange (additional units identified in this action plan) shaded polygons where the biophysical attributes are met. The 1 km x 1 km UTM grid square overlays (red outline with pink shading) are part of a standard national grid system that highlights the general geographic area containing critical habitat.

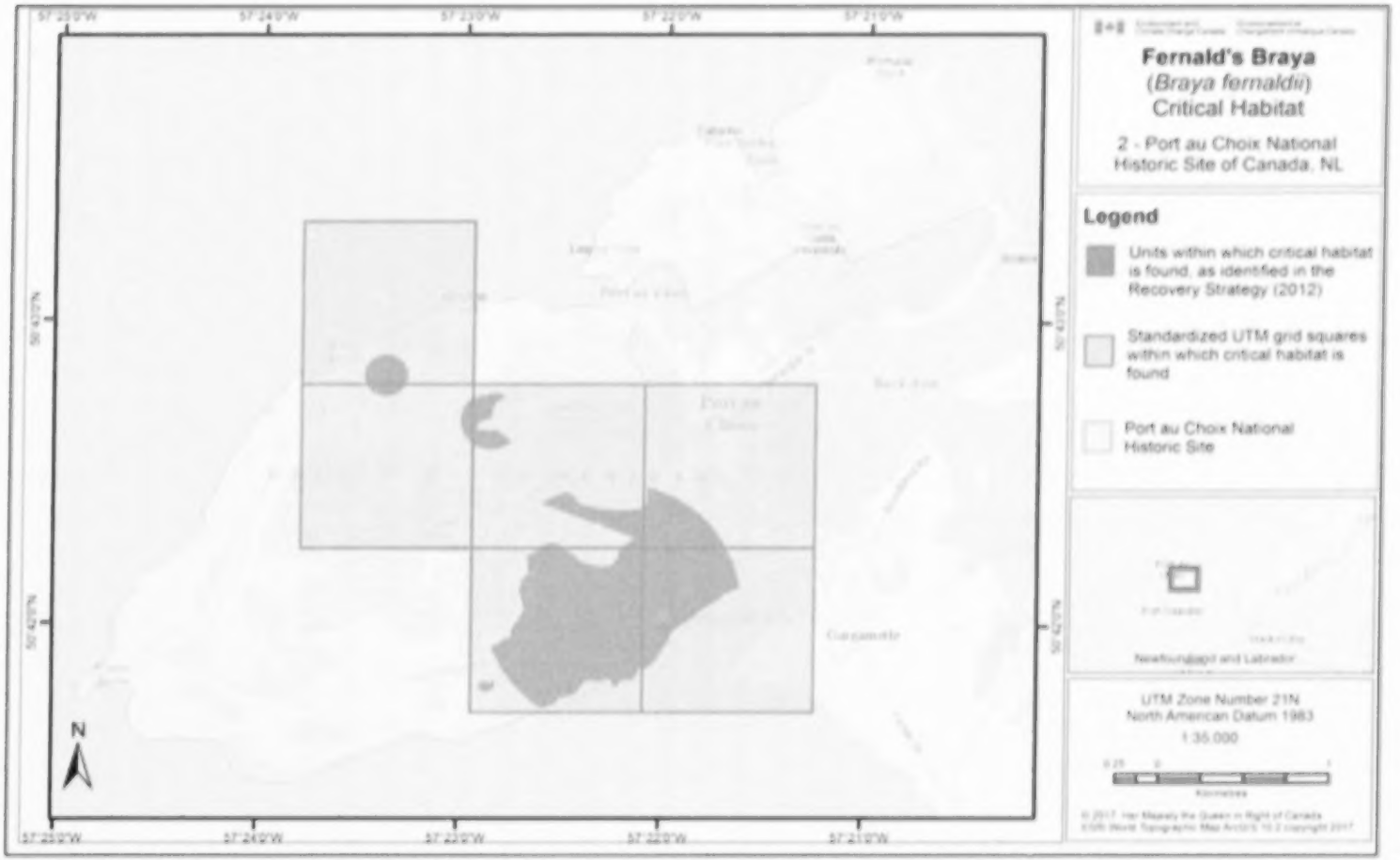
Fernald's Braya
(Braya fernaldii)
Critical Habitat
2 - Port au Choix National Historic Site of Canada, NL
Legend
Units within which critical habitat is found, as identified in the Recovery Strategy (2012)
Standardized UTM grid squares within which critical habitat is found
Port au Choix National Historic Site
Newfoundland and Labrador
UTM Zone Number 21N
North American Datum 1983
1:35,000
Kilometres
N

Figure 3. Fernald's Braya (*Braya fernaldii*) critical habitat at Port au Choix National Historic Site of Canada, Newfoundland and Labrador (close-up of inset map 2 from Figure 1). Critical habitat occurs within the red (units identified in the recovery strategy) shaded polygons where the biophysical attributes are met. The 1 km x 1 km UTM grid square overlays (red outline with pink shading) are part of a standard national grid system that highlights the general geographic area containing critical habitat. Note: The site boundary of the Port au Choix National Historic Site was incorrectly displayed in the published recovery strategy (Environment Canada 2012; Figure 7A) and has been corrected in this figure; the boundary of the critical habitat has not changed from that identified in the recovery strategy.

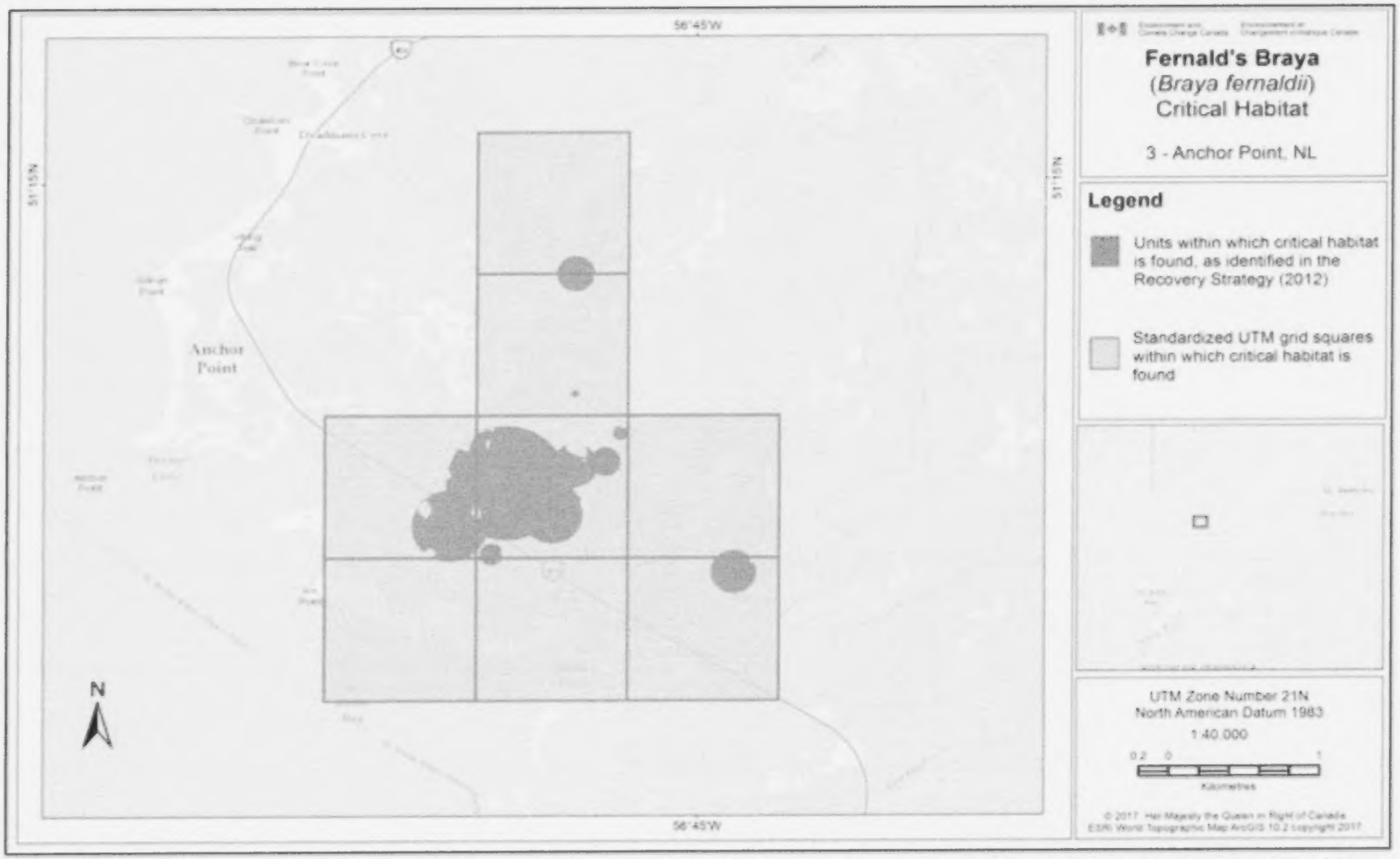

Figure 4. Fernald's Braya (*Braya fernaldii*) critical habitat at Anchor Point, Newfoundland and Labrador (close-up of inset map 3 from Figure 1). Critical habitat occurs within the red shaded polygons (units identified in the recovery strategy) where the biophysical attributes are met. The 1 km x 1 km UTM grid square overlays (red outline with pink shading) are part of a standard national grid system that highlights the general geographic area containing critical habitat.

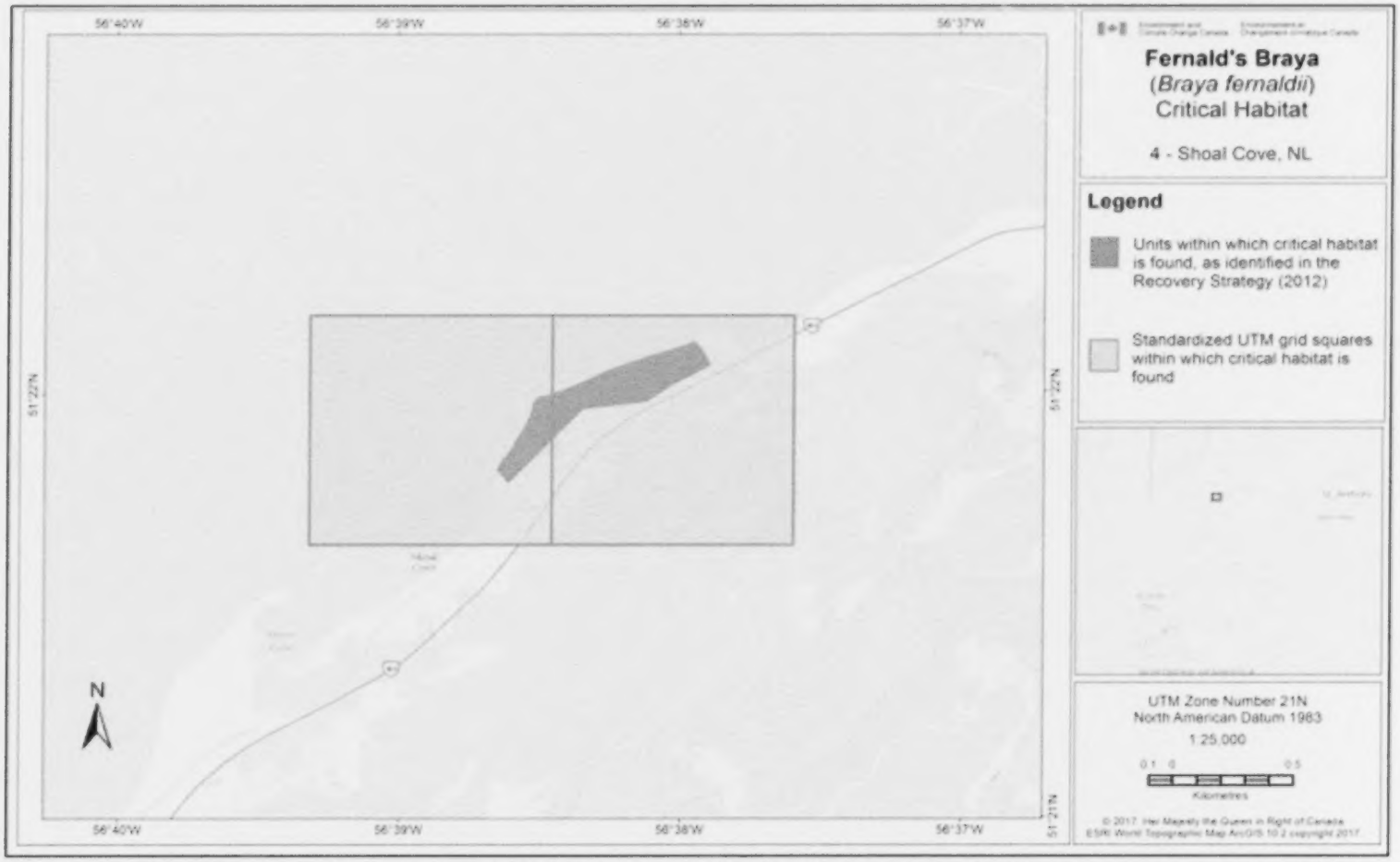

Figure 5. Fernald's Braya (*Braya fernaldii*) critical habitat at Shoal Cove, Newfoundland and Labrador (close-up of inset map 4 from Figure 1). Critical habitat occurs within the red shaded polygon (units identified in the recovery strategy) where the biophysical attributes are met. The 1 km x 1 km UTM grid square overlays (red outline with pink shading) are part of a standard national grid system that highlights the general geographic area containing critical habitat.

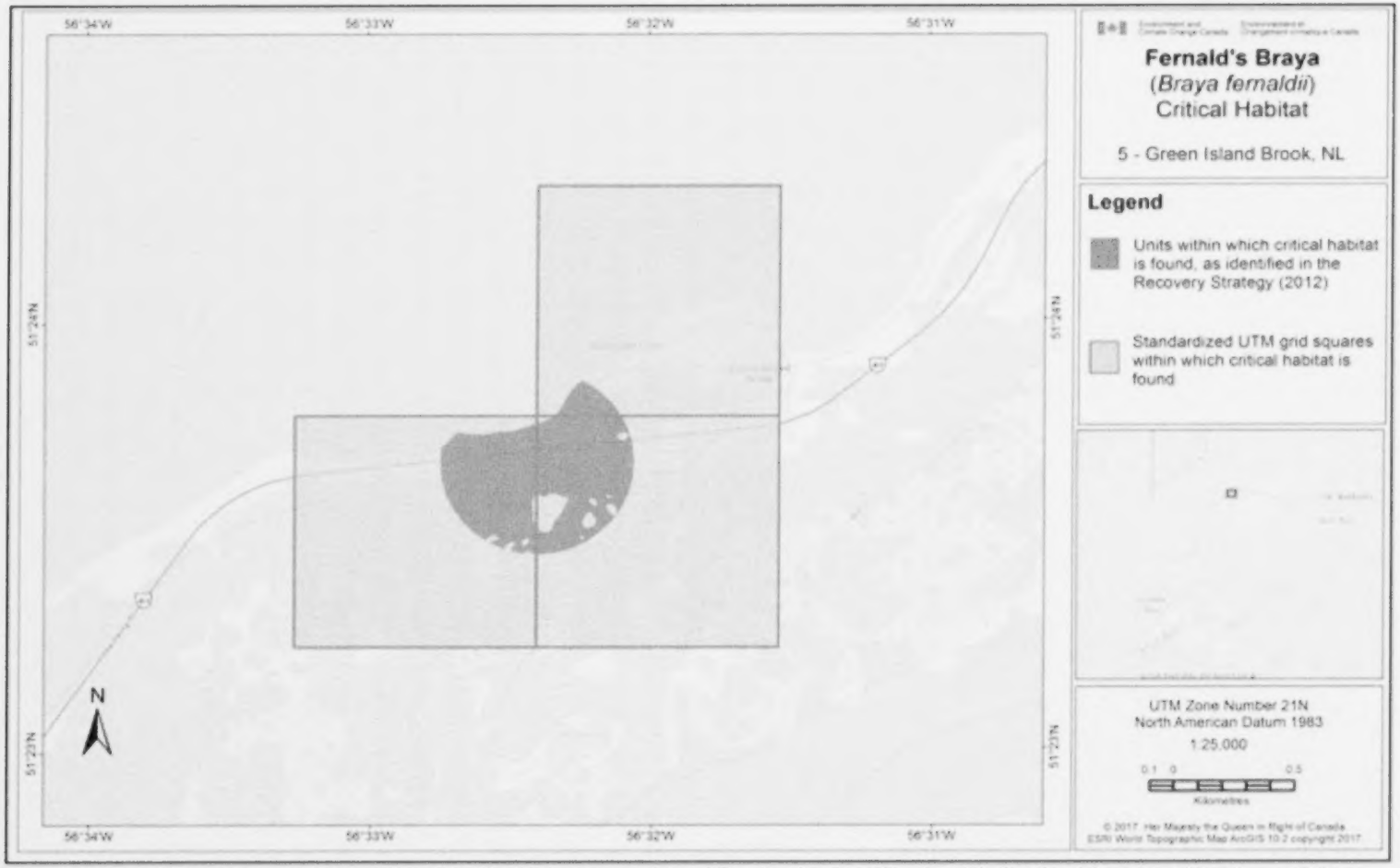

Figure 6. Fernald's Braya (*Braya fernaldii*) critical habitat at Green Island Brook, Newfoundland and Labrador (close-up of inset map 5 from Figure 1). Critical habitat occurs within the red shaded polygon (units identified in the recovery strategy) where the biophysical attributes are met. The 1 km x 1 km UTM grid square overlays (red outline with pink shading) are part of a standard national grid system that highlights the general geographic area containing critical habitat.

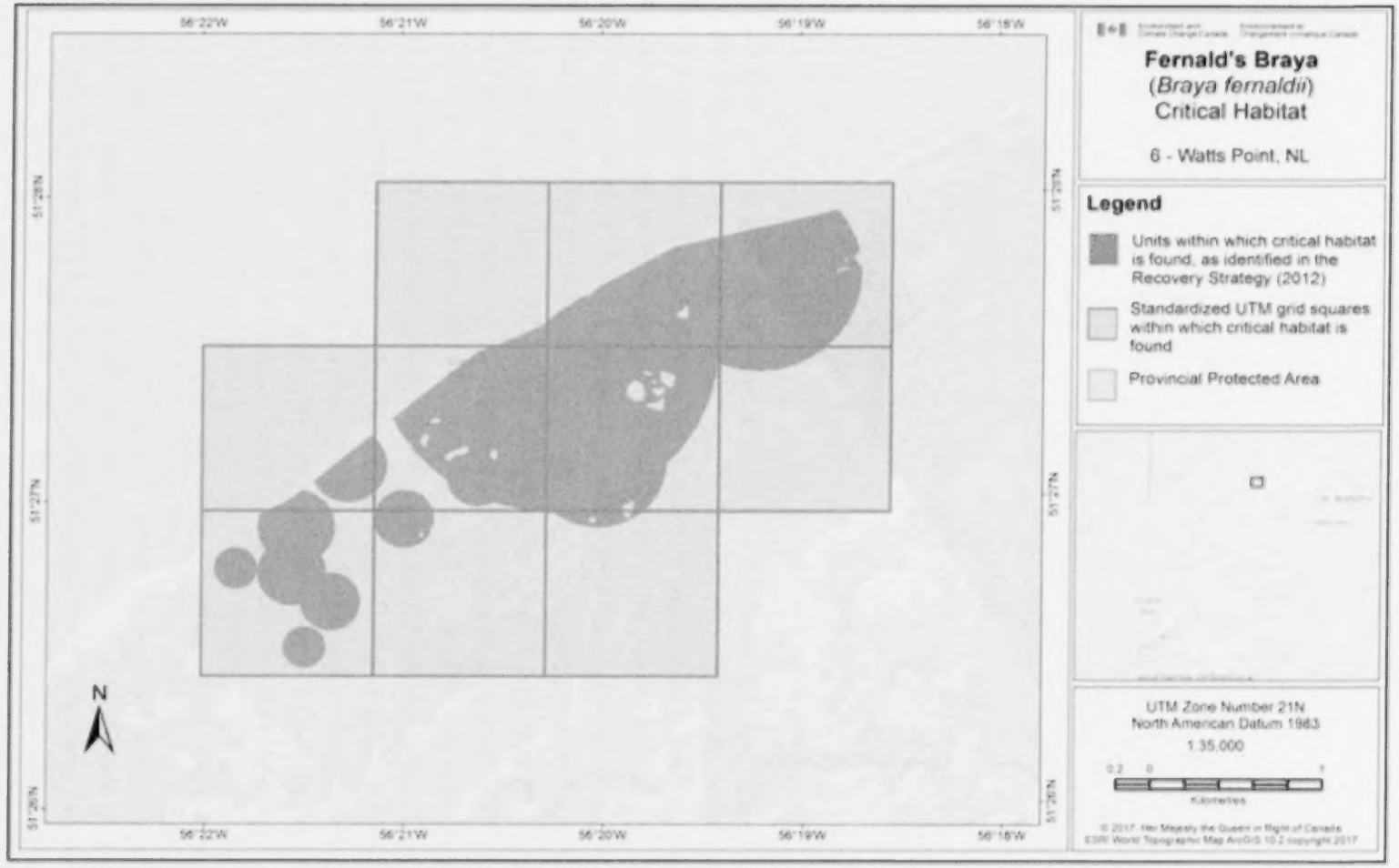

Figure 7. Fernald's Braya (*Braya fernaldii*) critical habitat at Watts Point, Newfoundland and Labrador (close-up of inset map 6 from Figure 1). Critical habitat occurs within the red shaded polygons (units identified in the recovery strategy) where the biophysical attributes are met. The 1 km x 1 km UTM grid square overlays (red outline with pink shading) are part of a standard national grid system that highlights the general geographic area containing critical habitat.

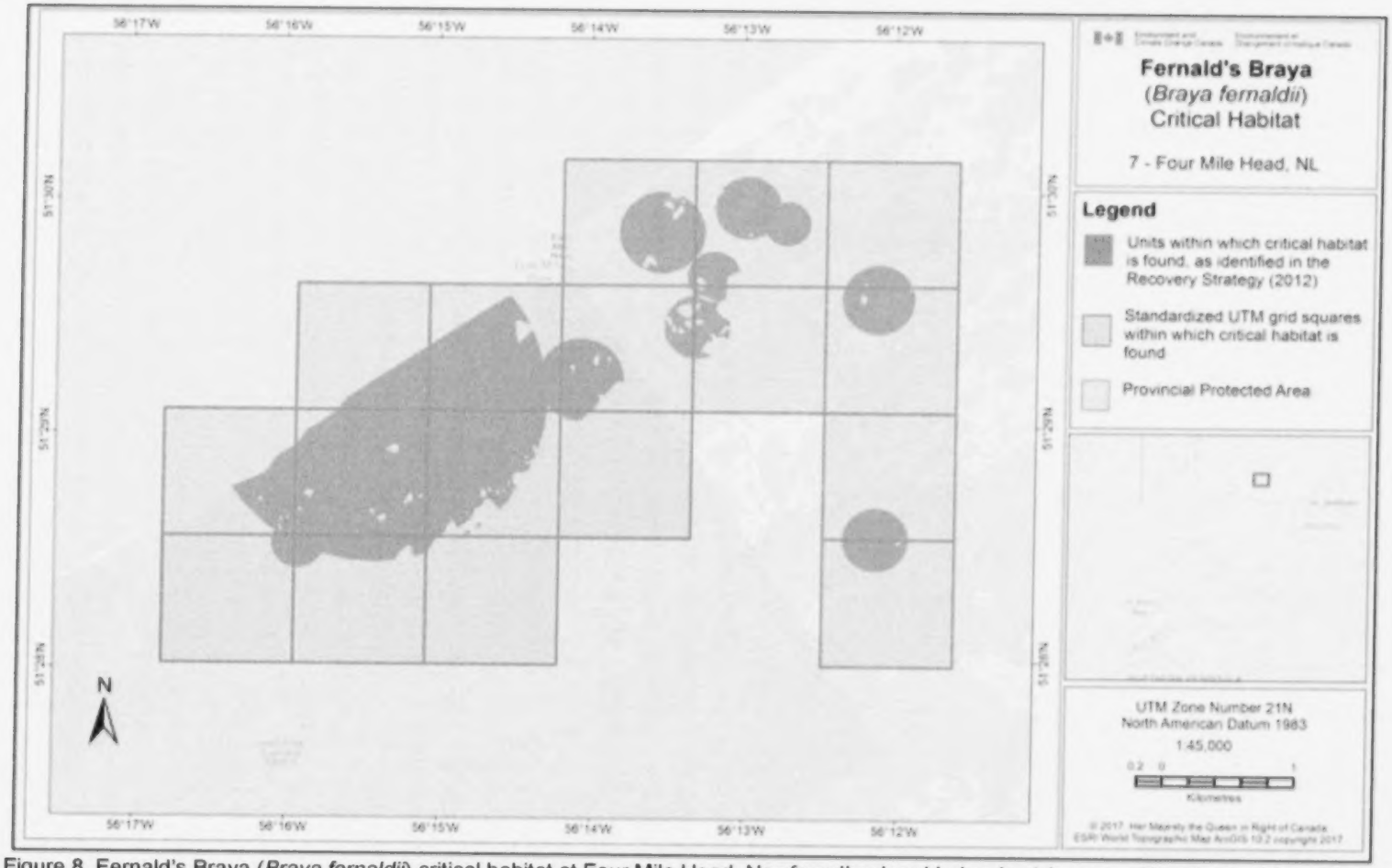

Figure 8. Fernald's Braya (*Braya fernaldii*) critical habitat at Four Mile Head, Newfoundland and Labrador (close-up of inset map 7 from Figure 1). Critical habitat occurs within the red shaded polygons (units identified in the recovery strategy) where the biophysical attributes are met. The 1 km x 1 km UTM grid square overlays (red outline with pink shading) are part of a standard national grid system that highlights the general geographic area containing critical habitat.

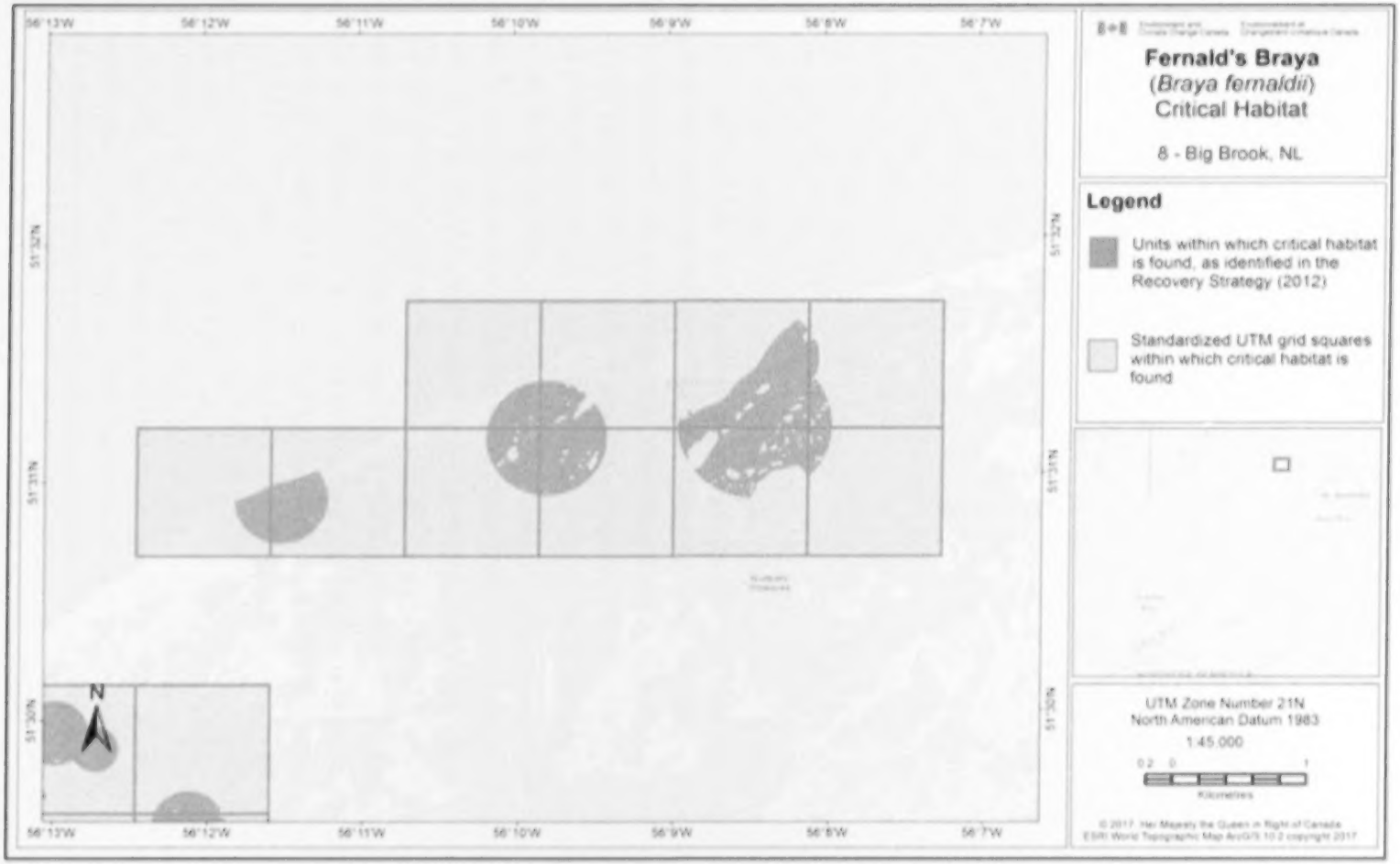

Figure 9. Fernald's Braya (*Braya fernaldii*) critical habitat at Big Brook, Newfoundland and Labrador (close-up of inset map 8 from Figure 1). Critical habitat occurs within the red shaded polygons (units identified in the recovery strategy) where the biophysical attributes are met. The 1 km x 1 km UTM grid square overlays (red outline with pink shading) are part of a standard national grid system that highlights the general geographic area containing critical habitat.

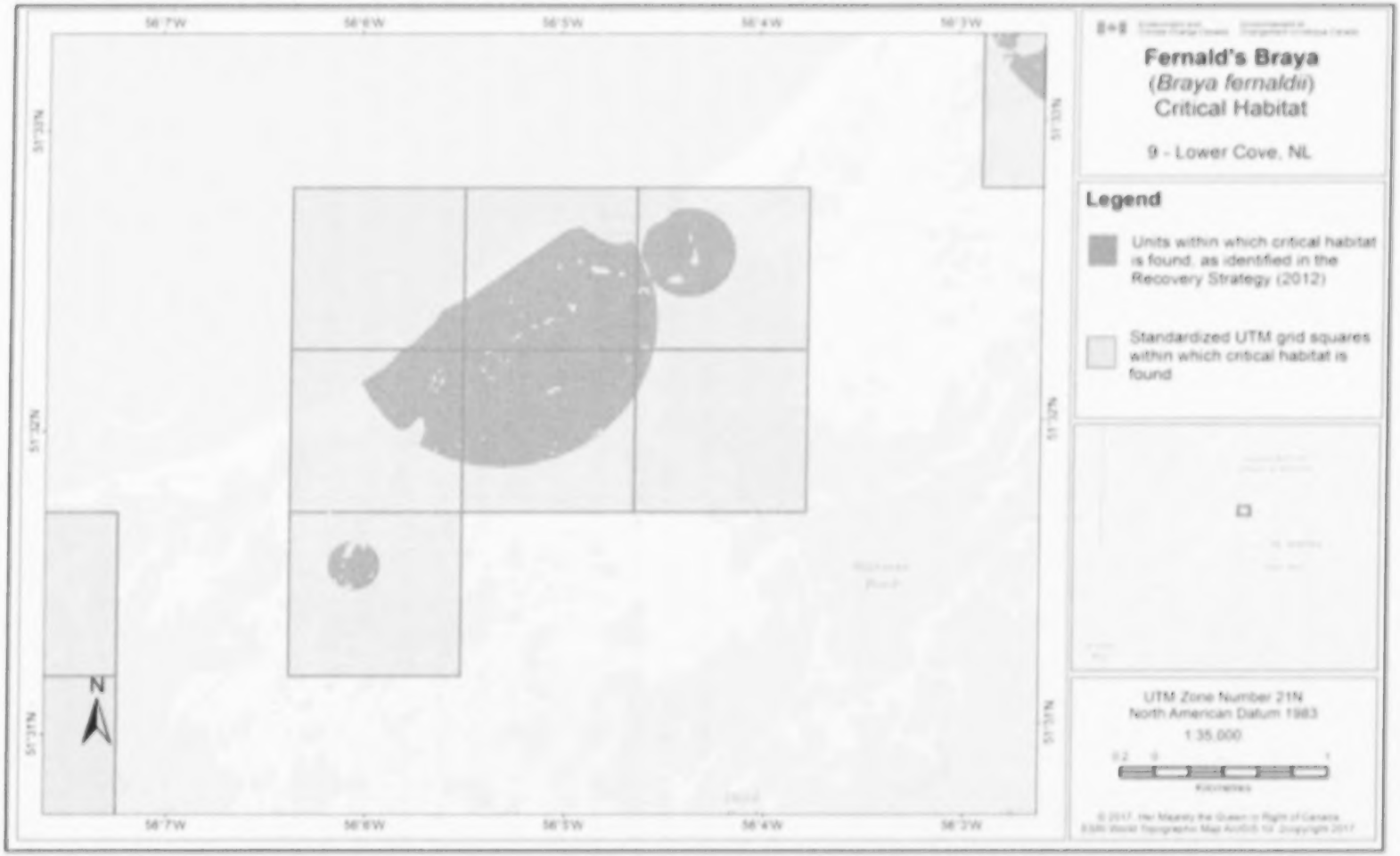
Fernald's Braya
(Braya fernaldii)
Critical Habitat
9 - Lower Cove, NL
Legend
Units within which critical habitat is found, as identified in the Recovery Strategy (2012)
Standardized UTM grid squares within which critical habitat is found
UTM Zone Number 21N
North American Datum 1983
1:35,000
N

Figure 10. Fernald's Braya (*Braya fernaldii*) critical habitat at Lower Cove, Newfoundland and Labrador (close-up of inset map 9 from Figure 1). Critical habitat occurs within the red shaded polygons (units identified in the recovery strategy) where the biophysical attributes are met. The 1 km x 1 km UTM grid square overlays (red outline with pink shading) are part of a standard national grid system that highlights the general geographic area containing critical habitat.

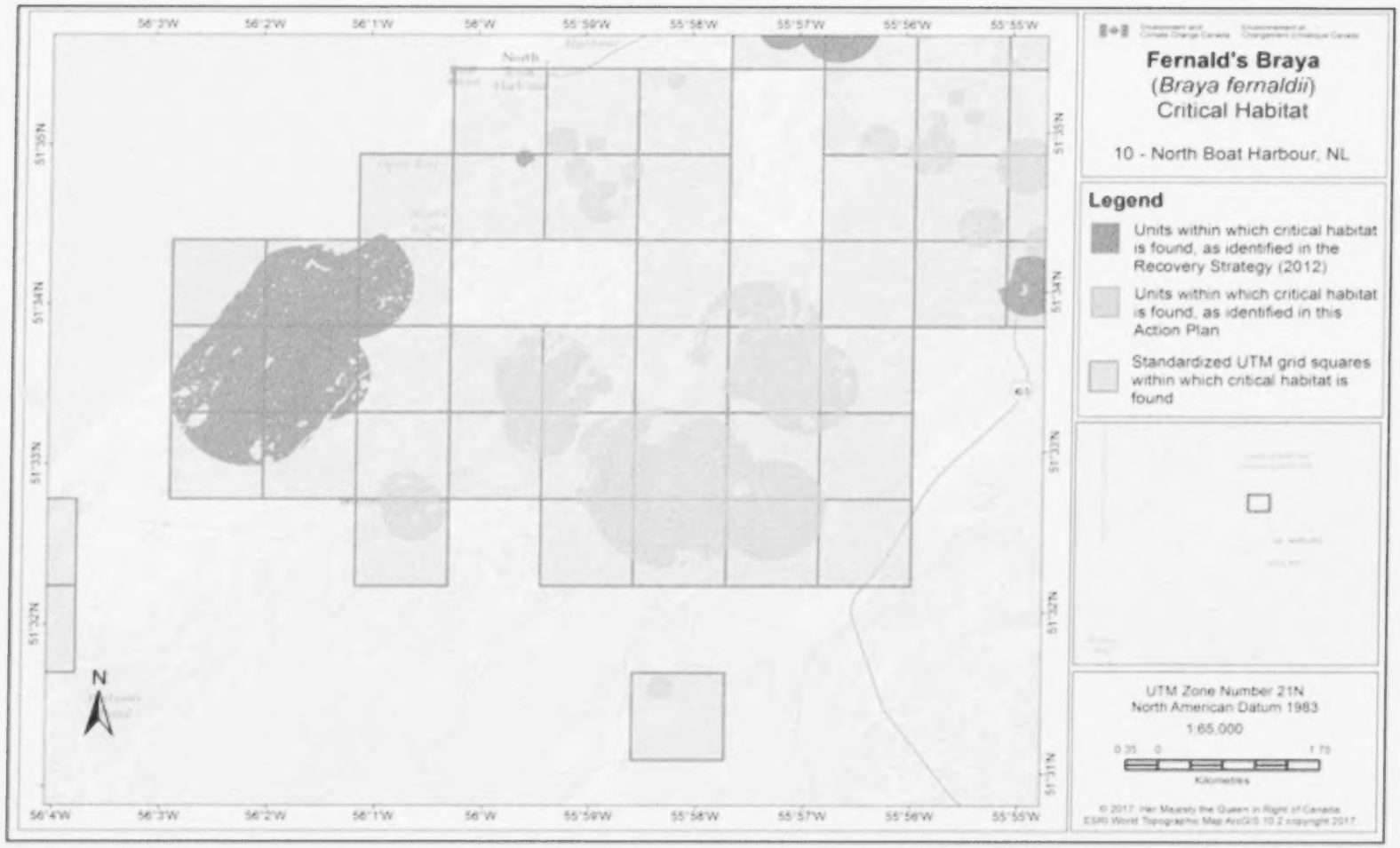
Fernald's Braya
(Braya fernaldii)
Critical Habitat
10 - North Boat Harbour, NL
Legend
Units within which critical habitat is found, as identified in the Recovery Strategy (2012)
Units within which critical habitat is found, as identified in this Action Plan
Standardized UTM grid squares within which critical habitat is found
UTM Zone Number 21N
North American Datum 1983
1:65,000
Kilometres
N

Figure 11. Fernald's Braya (*Braya fernaldii*) critical habitat at North Boat Harbour, Newfoundland and Labrador (close-up of inset map 10 from Figure 1). Critical habitat occurs within the red (units identified in the recovery strategy) and orange (additional units identified in this action plan) shaded polygons where the biophysical attributes are met. The 1 km x 1 km UTM grid square overlays (red outline with pink shading) are part of a standard national grid system that highlights the general geographic area containing critical habitat.

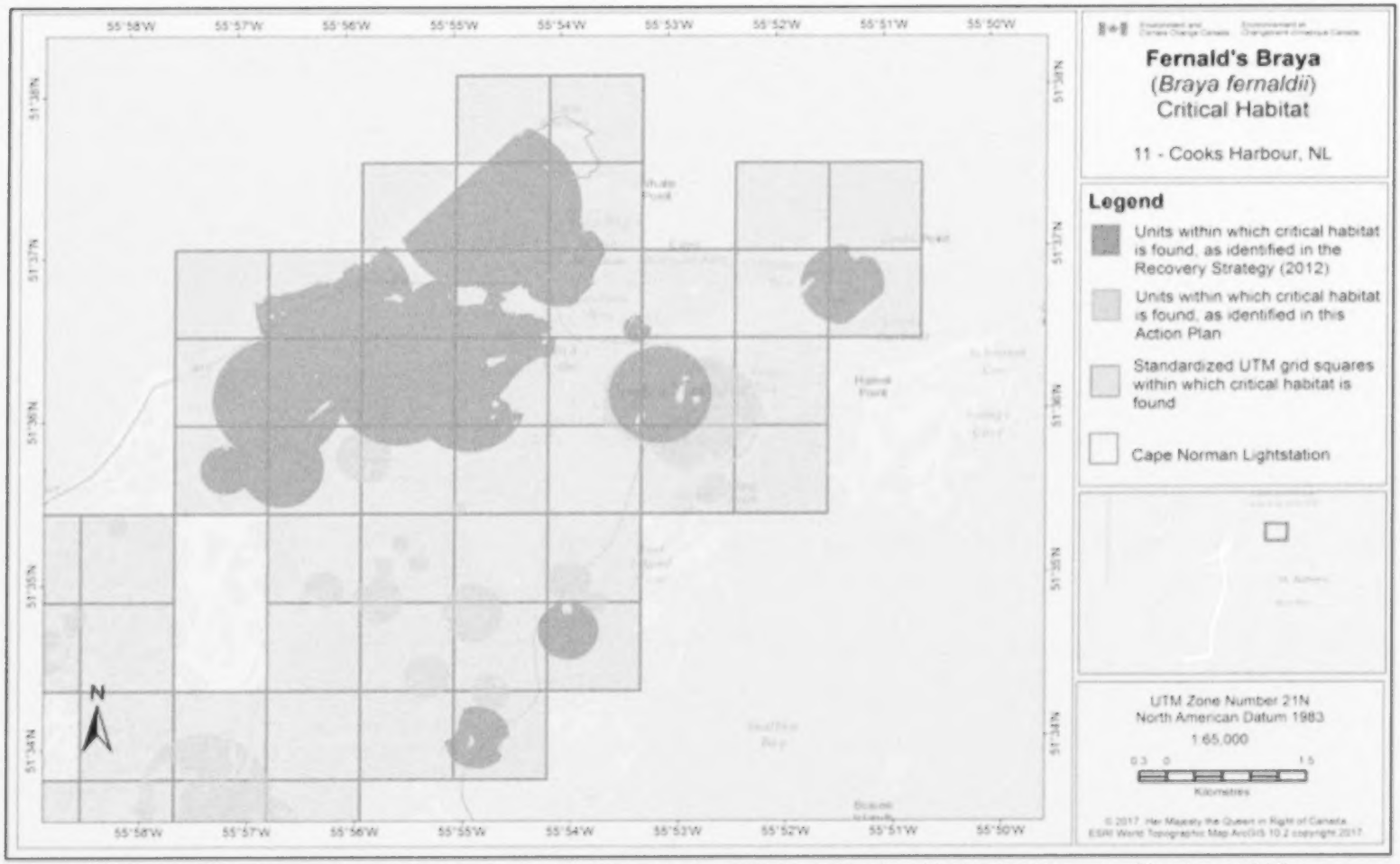

Figure 12. Fernald's Braya (*Braya fernaldii*) critical habitat at Cooks Harbour, Newfoundland and Labrador (close-up of inset map 11 from Figure 1). Critical habitat occurs within the red (units identified in the recovery strategy) and orange (additional units identified in this action plan) shaded polygons where the biophysical attributes are met. The 1 km x 1 km UTM grid square overlays (red outline with pink shading) are part of a standard national grid system that highlights the general geographic area containing critical habitat.

Figure 13. Fernald's Braya (*Braya fernaldii*) critical habitat at Burnt Cape, Newfoundland and Labrador (close-up of inset map 12 from Figure 1). Critical habitat occurs within the red shaded polygons (units identified in the recovery strategy) where the biophysical attributes are met. The 1 km x 1 km UTM grid square overlays (red outline with pink shading) are part of a standard national grid system that highlights the general geographic area containing critical habitat.

Figure 14. Overview of Long's Braya (*Braya longii*) critical habitat in Newfoundland and Labrador. Critical habitat occurs within the red and orange shaded polygons where the biophysical attributes are met. The 1 km x 1 km UTM grid square overlays (red outline with pink shading) are part of a standard national grid system that highlights the general geographic area containing critical habitat.

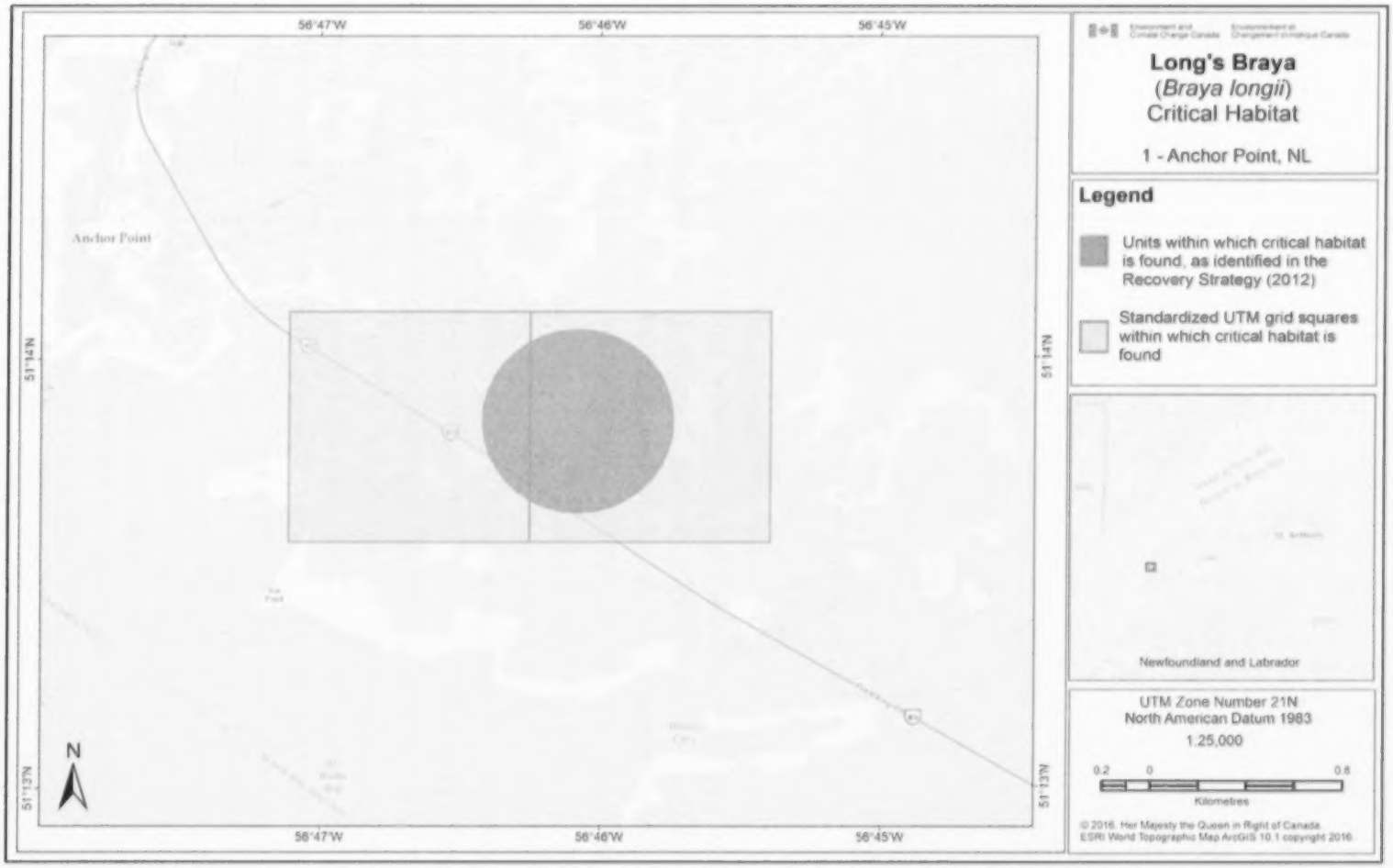

Figure 15. Long's Braya (*Braya longii*) critical habitat at Anchor Point, Newfoundland and Labrador (close-up of inset map 1 from Figure 14). Critical habitat occurs within the red shaded polygon where the biophysical attributes are met. The 1 km x 1 km UTM grid square overlays (red outline with pink shading) are part of a standard national grid system that highlights the general geographic area containing critical habitat.

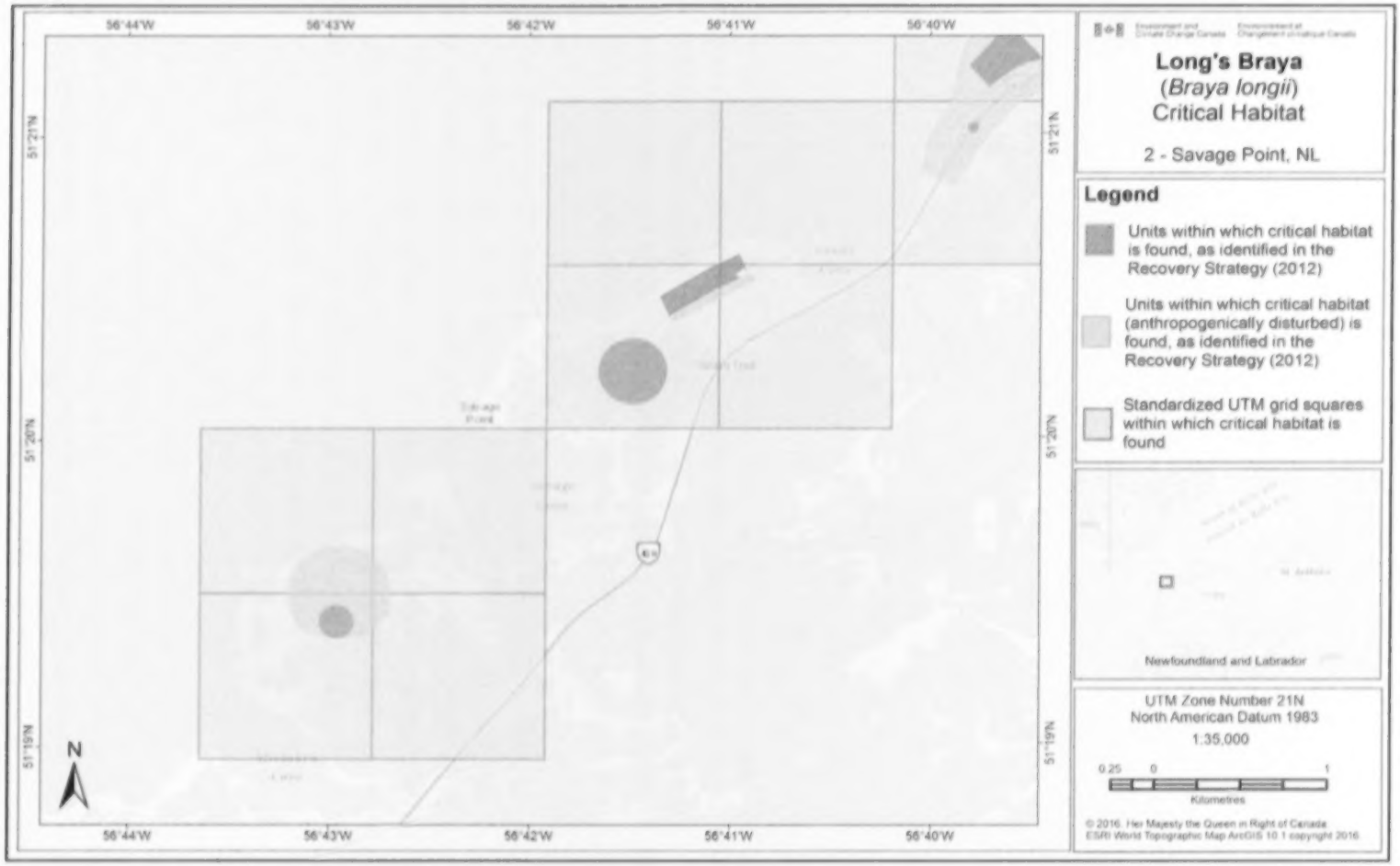

Figure 16. Long's Braya (*Braya longii*) critical habitat at Savage Point, Newfoundland and Labrador (close-up of inset map 2 from Figure 14). Critical habitat occurs within the red and orange shaded polygons where the biophysical attributes are met. The 1 km x 1 km UTM grid square overlays (red outline with pink shading) are part of a standard national grid system that highlights the general geographic area containing critical habitat.

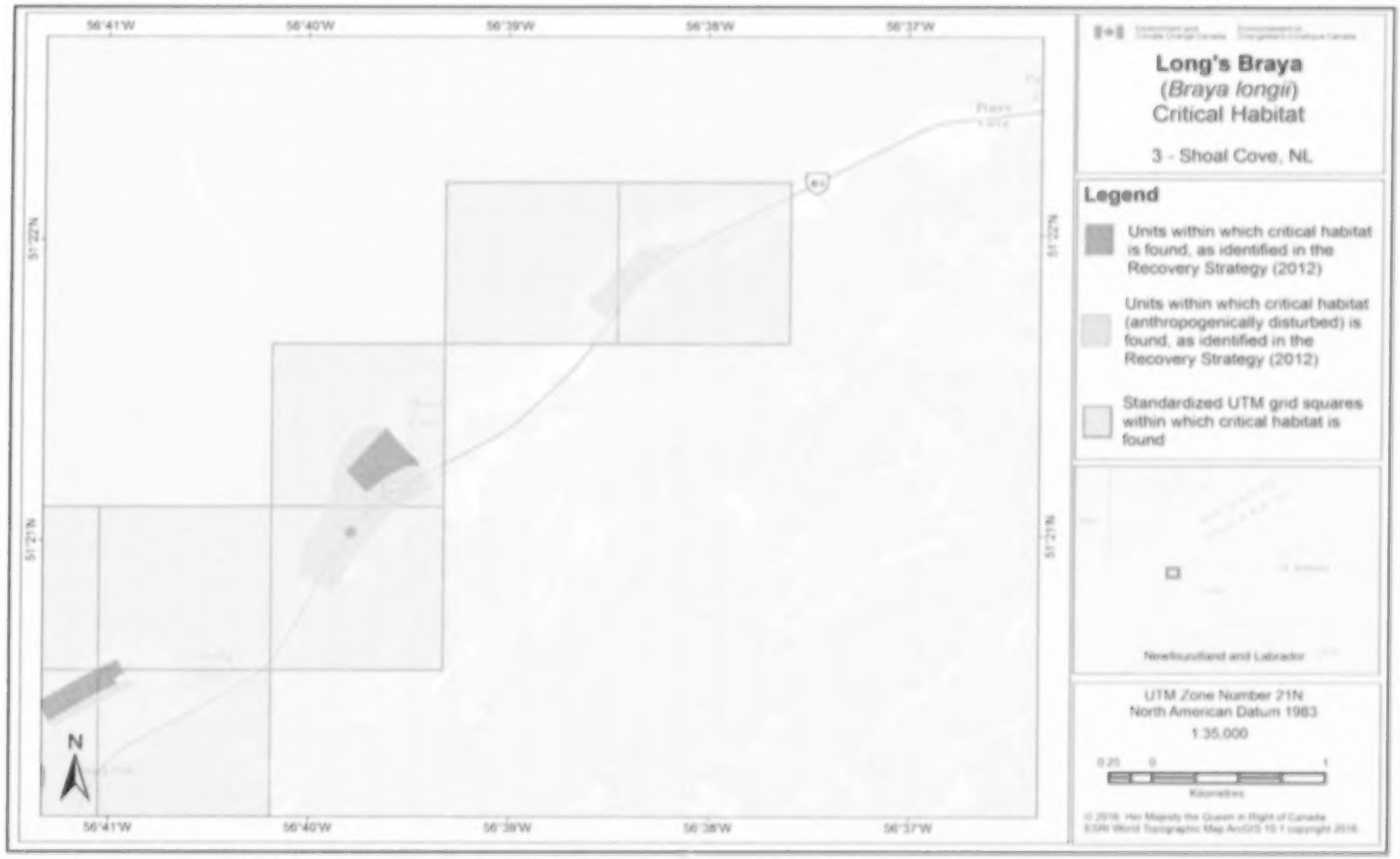

Figure 17. Long's Braya (*Braya longii*) critical habitat at Shoal Cove, Newfoundland and Labrador (close-up of inset map 3 from Figure 14). Critical habitat occurs within the red and orange shaded polygons where the biophysical attributes are met. The 1 km x 1 km UTM grid square overlays (red outline with pink shading) are part of a standard national grid system that highlights the general geographic area containing critical habitat.

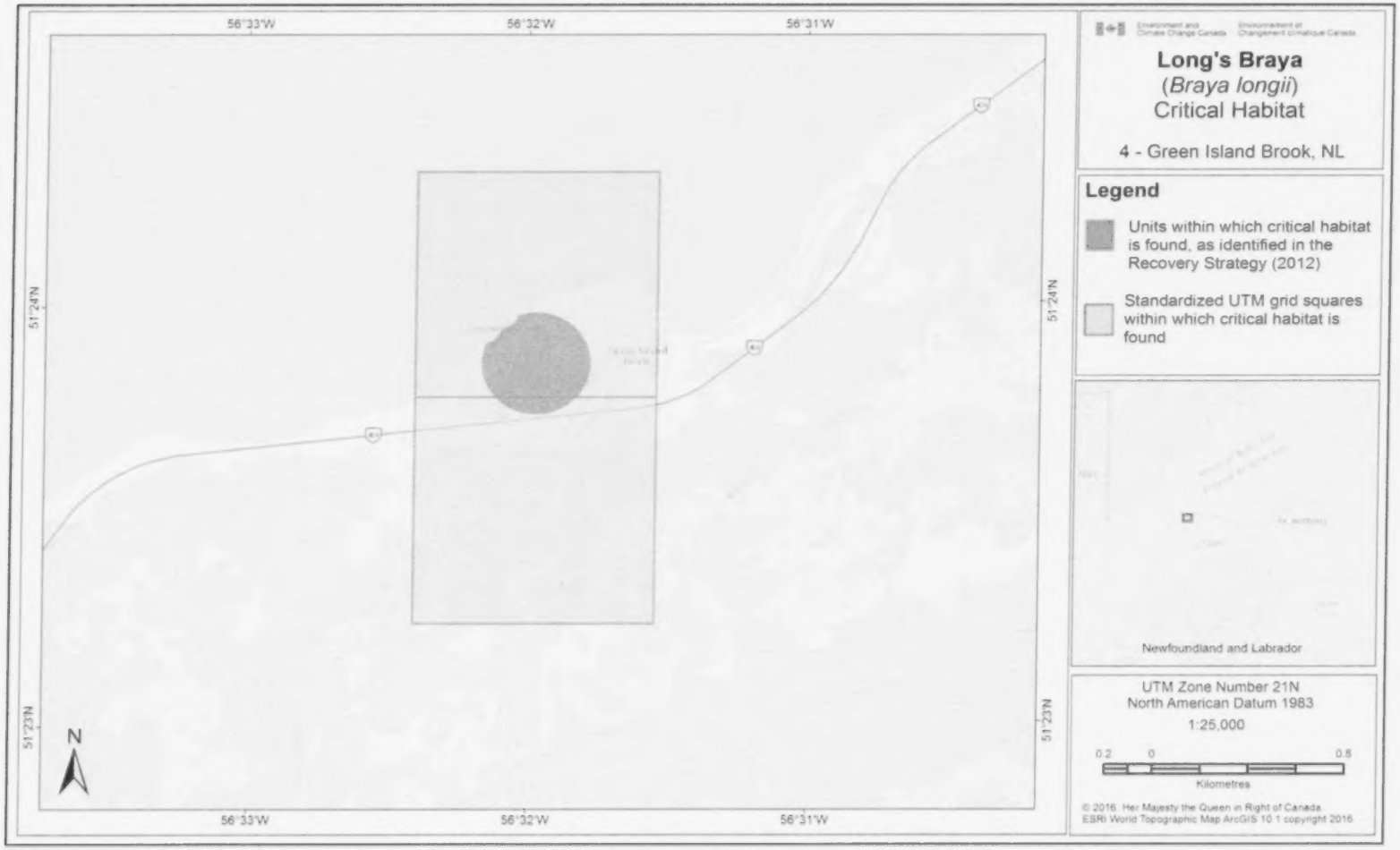

Figure 18. Long's Braya (*Braya longii*) critical habitat at Green Island Brook, Newfoundland and Labrador (close-up of inset map 4 from Figure 14). Critical habitat occurs within the red shaded polygon where the biophysical attributes are met. The 1 km x 1 km UTM grid square overlays (red outline with pink shading) are part of a standard national grid system that highlights the general geographic area containing critical habitat.

1.4 Proposed Measures to Protect Critical Habitat

Critical habitat for Long's Braya and Fernald's Braya is identified on both federal and non-federal lands on the limestone barrens of the Great Northern Peninsula of Newfoundland.

1.4.1 Measures Proposed to Protect Critical Habitat on Federal Lands

Critical habitat for Fernald's Braya was identified in the recovery strategy on federal lands within the Port au Choix National Historic Site of Canada and on a property owned by Fisheries and Oceans Canada in Cape Norman.

Subsection 58(5) of SARA requires the competent minister to make an order for any part of the critical habitat that is not legally protected by the provisions or measures under SARA or any other federal act within 180 days of the final posting of the recovery strategy identifying the critical habitat in the Species at Risk Public Registry. If the competent minister does not make the order, he or she must include in the Public Registry a statement setting out how the critical habitat or portions of it are legally protected. Parks Canada Agency is responsible for the legal protection of critical habitat found in Port au Choix National Historic Site of Canada as per section 58 of SARA. Environment and Climate Change Canada is currently working with Fisheries and Oceans Canada to develop an order to legally protect critical habitat of the endangered Barrens Willow (*Salix jejuna*) in Cape Norman under subsections 58(4) and (5) of SARA. Given there are portions of Barrens Willow and Fernald's Braya critical habitats that overlap, Fernald's Braya will benefit from the order being developed for Barrens Willow. A specific order for the legal protection of critical habitat of Fernald's Braya will however still be pursued.

1.4.2 Measures Proposed to Protect Critical Habitat on Non-federal Lands

A large portion of critical habitat for Long's Braya and Fernald's Braya is located on non-federal lands.

With regard to the portions of critical habitat on non-federal lands, Environment and Climate Change Canada will assess the protection currently in place. This involves first working with the Government of Newfoundland and Labrador to determine which laws and legal instruments are in place to prevent destruction of critical habitat. If there are gaps in the protection of critical habitat, provisions or measures in place under SARA or other federal legislation will be reviewed to determine whether they prevent destruction of critical habitat. The laws and legal agreements in place that protect critical habitat will be monitored for efficacy at least every five years. Conservation measures, including stewardship initiatives, that contribute to preventing critical habitat destruction will also be considered and monitored.

If it is determined that any portions of critical habitat are not protected, and steps are being taken to protect those portions, those steps will be communicated via the Species at Risk Public Registry through the reports referred to in section 63 of SARA.

2. Evaluation of Socio-Economic Costs and of Benefits

SARA requires that an action plan include an evaluation of the socio-economic costs of the action plan and the benefits to be derived from its implementation (SARA 49(1)(e), 2002). This evaluation addresses only the incremental socio-economic costs of implementing this action plan from a national perspective as well as the social and environmental benefits that would occur if the action plan were implemented in its entirety, recognizing that not all aspects of its implementation are under the jurisdiction of the federal government. It does not address cumulative costs of species recovery in general nor does it attempt a cost-benefit analysis. Its intent is to inform the public and to guide decision making on implementation of the action plan by partners.

The protection and recovery of species at risk can result in both benefits and costs. The Act recognizes that "*wildlife, in all its forms, has value in and of itself and is valued by Canadians for aesthetic, cultural, spiritual, recreational, educational, historical, economic, medical, ecological and scientific reasons*" (SARA 2002). Self-sustaining and healthy ecosystems with their various elements in place, including species at risk, contribute positively to the livelihoods and the quality of life of all Canadians. A review of the literature confirms that Canadians value the preservation and conservation of species in and of themselves. Actions taken to preserve a species, such as habitat protection and restoration, are also valued. In addition, the more an action contributes to the recovery of a species, the higher the value the public places on such actions (Loomis and White 1996; Fisheries and Oceans Canada 2008). Furthermore, the conservation of species at risk is an important component of the Government of Canada's commitment to conserving biological diversity under the *International Convention on Biological Diversity*. The Government of Canada has also made a commitment to protect and recover species at risk through the Accord for the Protection of Species at Risk. The specific costs and benefits associated with this action plan are described below.

The Long's Braya and Fernald's Braya socio-economic assessment was conducted jointly with the Barrens Willow (Environment Canada 2015) because their range and habitat are comparable. Limestone barrens conservation in Newfoundland is an important issue, and stewardship initiatives are underway from multiple organizations to facilitate and promote these efforts.

2.1 Policy Baseline

The province of Newfoundland and Labrador has access to many legislative, regulatory, and management tools for the conservation and stewardship of Fernald's Braya and Long's Braya (e.g., Newfoundland and Labrador's *Endangered Species Act*,

Newfoundland and Labrador *Wilderness and Ecological Reserves Act*, and Sensitive Wildlife Area designations).

The Limestone Barrens Habitat Stewardship Program has been ongoing in the area for many years in an effort to promote the long term conservation of rare plants in the area.

Additionally, many recovery measures can be supported by federal species at risk funding programs, contributions by recovery biologists, or research by universities.

2.2 Socio-economic Profile and Baseline

There are few communities that are affected by protection of these species and their critical habitat. The primary industries of the area relate to the fishery and natural resource extraction. Although there are no Aboriginal groups native to the area, Qalipu First Nation has indicated traditional use of resources on the Great Northern Peninsula.

2.3 Socio-economic Costs of Implementing this Action Plan

Direct costs are those that result from the implementation of the approaches identified in the implementation schedule (Table 1). Only the incremental costs are considered and therefore do not include ongoing actions or initiatives discussed in section 2.1 (Policy Baseline). Certain approaches listed in the implementation schedule also apply to the recovery of Barrens Willow because these species coexist at a number of sites identified as critical habitat. As a result, the action plan for the Barrens Willow (Environment Canada 2015) and the action plan for the Long's Braya and the Fernald's Braya were developed concurrently. In order to ensure that all direct costs are captured, the shared costs have been calculated in both action plans. The direct costs of implementing the recovery actions for all three species are expected to be low (between $0 and $5 million) over the short (2018-2023) and long term. These anticipated costs include salary, volunteer time, travel, materials, equipment, and other related costs.

Indirect costs are the costs associated with implementing the action plan, which may affect various stakeholders including foregoing or modifying current and future activities. The anticipated indirect costs of implementing this action plan are considered low.

Off-road vehicle (ORV) damage is a threat throughout the limestone barrens. Presently, the Watts Point Ecological Reserve prohibits the use of ORVs, and it is expected that the proposed expansion area will have a comparable prohibition against motorized vehicles. In addition, critical habitat found on federal property in the Cape Norman area will be protected from destruction by ORV use through the measures under SARA. However, there is minimal foreseen impact to ORV users given the relatively small area that will be affected.

Quarry operators may need to spend additional time completing the provincial application process and searching for newly proposed quarry sites to ensure they are outside of critical habitat.

2.4 Benefits of Implementing this Action Plan

2.4.1 Value of biodiversity to Canadians

Biodiversity is essential for healthy ecosystems, human health, prosperity, security, and wellbeing. Canadians derive many benefits from biodiversity including recreational, aesthetic, educational, and cultural benefits, as well as ecological goods and services essential to human survival. Care for the environment is consistently ranked as one of Canadian's top priorities in public opinion polls[7]. A recent opinion poll found that three-quarters of Canadian respondents feel that preserving natural areas and the diversity of native plant and animal life in Canada is important to them[8].

The total value of endangered species includes non-consumptive-use values (such as recreation, spiritual/cultural, research, and education), indirect-use values (value of the ecological role of a species in an ecosystem), and non-use values (i.e., preserving the benefits of nature for future generations)[9]. Achieving the objectives of this action plan will have a positive impact on society. The direct value of recovering these species, for the preservation or the enhancement of biodiversity, is not easily estimated.

2.4.2 Eco-tourism and cultural values

Eco-tourism is the fastest-growing area of the tourism industry (Mastny 2001). In 2004, this market grew three times faster than the industry as a whole and the World Tourism Organization estimates that global spending on eco-tourism is increasing by 20% a year, about six times the industry-wide rate of growth (TEEB 2008).

Communities near critical habitat have been attempting to utilize the uniqueness of the local terrain as a way to generate economic growth. Northern Newfoundland is made up of small coastal communities with a history of unemployment and loss of industry. The expansion of Watts Point Ecological Reserve and the potential designation of an area near Cape Norman as an ecological reserve may enhance tourism in the local communities. For example, Port aux Choix National Historic Site of Canada and Burnt Cape Ecological Reserve have similar designations for those being sought for Watts Point Ecological Reserve expansion, and the Cape Norman area, and these sites have increased tourism as a result of their protected area status.

As a result of achieving the recovery goals of this action plan, there will likely be an increase in eco-tourism activity, and the associated economic spin-offs to local businesses and enhanced cultural value of local communities.

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[7] Canada's Fourth National Report to the United Nations Convention on Biological Diversity, 2010. Available online www.cbd.int/doc/world/ca/ca-nr-04-en.pdf Accessed December 3, 2010.

[8] Ipsos Reid Opinion Poll "Nine in Ten (87%) Canadians Say That When Connected to Nature They Feel Happier." Released January 7, 2011, www.ispsos.ca

[9] Non-use values include bequest value (satisfaction of knowing that future generations will have access to nature's benefits), altruist value (satisfaction of knowing that other people have access to nature's benefits) and existence value (satisfaction of knowing that a species or ecosystem exists).

2.4.3 Conservation of other species

Of the approximately 300 rare vascular plants on the island of Newfoundland, approximately 100 species grow in the ecoregions containing limestone barrens, and 30 of those species are found only on the limestone barrens. Long's Braya, Fernald's Braya, and Barrens Willow are all endemic to the limestone barrens. By focusing on permanent conservation measures, including the expansion of ecological reserves and increased communication among provincial agencies, as well as improved public outreach, it is expected that the recovery approaches outlined in the action plan will benefit the larger ecological community as well as other species-at-risk.

2.5 Distributional Impacts

Although Long's Braya and Fernald's Braya occur on provincial, federal, and private properties, private landowners are not expected to bear the brunt of the responsibility for the species' recovery. Non-governmental organizations are active in Newfoundland and Labrador where the species occur, and an approach of this action plan is to foster cooperative relationships with landowners and others to maintain critical habitat.

3. Measuring Progress

The performance indicators presented in the associated recovery strategy provide a way to define and measure progress toward achieving the population and distribution objectives.

Reporting on *implementation* of the action plan (under s. 55 of SARA) will be done by assessing progress towards implementing the broad strategies.

Reporting on the ecological and socio-economic impacts of the action plan (under s. 55 of SARA) will be done by assessing the results of monitoring the recovery of the species and its long term viability, and by assessing the implementation of the action plan.

4. References

Copp, C. 2014. The Development of Protocols to Restore the Globally At-risk Limestone Barrens Ecosystem. M.Sc. Thesis. Department of Biology, Memorial University of Newfoundland, St. John's, NL.

Environment Canada. 2012. Recovery Strategy for Long's Braya (*Braya longii*) and Fernald's Braya (*Braya fernaldii*) in Canada. *Species at Risk Act* Recovery Strategy Series. Environment Canada, Ottawa, ON. v + 38 pp.

Environment Canada. 2015. Action Plan for Barrens Willow (*Salix jejuna*) in Canada [Draft]. *Species at Risk Act* Action Plan Series. Environment Canada, Ottawa. iv + 16 pp.

Fisheries and Oceans Canada. 2008. Estimation of the Economic Benefits of Marine Mammal Recovery in the St. Lawrence Estuary. Policy and Economics Regional Branch, Quebec 2008.

Loomis, J.B. & White, D.S. 1996. Economic Benefits of Rare and Endangered Species: Summary and Meta-analysis. Ecological Economics 18: 197-206.

Mastny, L. 2001. Traveling Light: New Paths for International Tourism. The World Watch Institute. Available: www.worldwatch.org/system/files/EWP159.pdf

Species at Risk Act (SARA) (S.C. 2002, c. 29). Available: http://laws-lois.justice.gc.ca/eng/acts/S-15.3/page-1.html

TEEB (The Economics of Ecosystems and Biodiversity). 2008. An Interim Report. European Communities. Available: www.teebweb.org/LinkClick.aspx?fileticket=u2fMSQoWJf0%3d&tabid=1278&language=en-US.

Appendix A: Effects on the Environment and Other Species

A strategic environmental assessment (SEA) is conducted on all SARA recovery planning documents, in accordance with the *Cabinet Directive on the Environmental Assessment of Policy, Plan and Program Proposals*[10]. The purpose of a SEA is to incorporate environmental considerations into the development of public policies, plans, and program proposals to support environmentally sound decision-making and to evaluate whether the outcomes of a recovery planning document could affect any component of the environment or any of the Federal Sustainable Development Strategy's[11] (FSDS) goals and targets.

Recovery planning is intended to benefit species at risk and biodiversity in general. However, it is recognized that implementation of action plans may inadvertently lead to environmental effects beyond the intended benefits. The planning process based on national guidelines directly incorporates consideration of all environmental effects, with a particular focus on possible impacts upon non-target species or habitats. The results of the SEA are incorporated directly into the action plan itself, but are also summarized below in this statement.

This action plan will clearly benefit the environment by promoting the recovery of Long's Braya and Fernald's Braya, as well as the many other rare plants found on the limestone barrens of the Great Northern Peninsula of Newfoundland (e.g., Barrens Willow). The potential for the plan to inadvertently lead to adverse effects on other species was considered. The SEA concluded that this plan will not entail any significant adverse effects.

[10] www.ceaa.gc.ca/default.asp?lang=En&n=B3186435-1
[11] www.ec.gc.ca/dd-sd/default.asp?lang=En&n=F93CD795-1